

A case of acquired immune deficiency syndrome before 1980

Ernest Rogan, Jr., MD
Laurence D. Jewell, MD
Bruce W. Mielke, MD
Dennis Kunimoto, MD
Arnold Voth, MD
David L. Tyrrell, MD

Acquired immune deficiency syndrome (AIDS) was first reported in North America in 1981.¹⁻³ However, cases of multiple severe opportunistic infections in previously healthy adults from Central Africa had previously been documented.⁴⁻⁶ We describe a case of AIDS in a Canadian man who had received a blood transfusion in Zaire in 1976.

Case report

A previously healthy Canadian 32-year-old heterosexual man was involved in an airplane crash in remote Zaire in November 1976. He suffered a compound comminuted fracture of the right femur and a fracture of the odontoid. He remained within the wreckage for approximately 12 hours, until he was found by a group of villagers and transported by primitive means for 2 days to Kisingani University, where he received a blood transfusion. He was subsequently transferred to Kinshasa and then to Edmonton.

In hospital the patient had a persistently low leukocyte count of $1.4 \times 10^9/L$ (less than 10% lymphocytes). This abnormality was presumed to be secondary to cephalothin therapy, but he subsequently experienced general malaise, a weight loss of nearly 15 kg and severe mucocutaneous candidiasis.

Blood samples revealed that the concentration of T cells and the lymphoblastic transformation in response to concanavalin A and phytohemagglutinin were greatly decreased. Skin tests for *Candida* infection, tuberculosis and mumps and with streptokinase-streptodornase had negative results. Protein electrophoresis showed slight increases in IgG and IgA concentrations and normal IgM concentrations. The patient had had childhood illnesses, such as mumps and measles, with-

out any evidence of T-cell deficiency, and none of his seven siblings showed any evidence of immune deficiency.

The patient had recurring bouts of ataxia and severe dysarthria, which were presumed to be secondary to cerebral embolism from vegetations of *Candida* endocarditis, even though two-dimensional echocardiograms and carotid artery angiograms appeared normal and blood cultures did not yield organisms. In the 2 days before he died severe herpes simplex type 1 infection developed in the lips, pharynx, larynx and upper trachea. Vidarabine therapy was started; however, he died of adult respiratory distress syndrome and gram-negative septicemia in June 1980.

Serologic testing in 1983 of the stored blood drawn in February 1980 repeatedly had positive results for antibody to human immunodeficiency virus (HIV) (then known as HTLV-III/LAV) by means of the enzyme-linked immunosorbent assay (ELISA).

Postmortem examination revealed findings similar to those described in other cases of AIDS⁷ and included disseminated cytomegalovirus (CMV) infection, herpetic esophagitis and pharyngitis, and *Torulopsis glabrata* endocarditis with cerebral em-

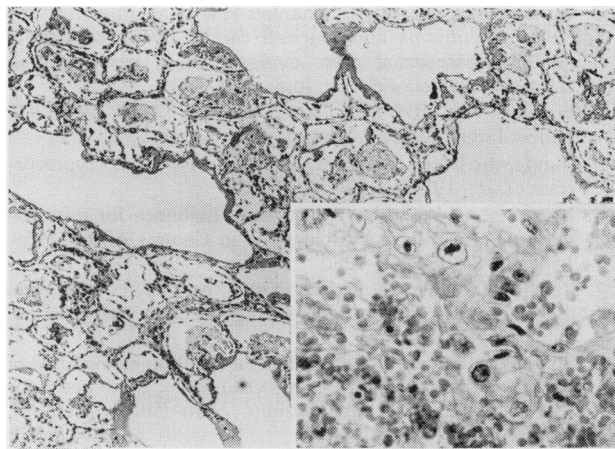


Fig. 1 — Intra-alveolar hemorrhage and hyaline membrane formation; manifestations of cytomegalovirus infection, inset shows multiple intranuclear inclusions (hematoxylin and eosin; original magnification $\times 40$ [inset $\times 160$], reduced approximately 50%).

From the departments of Internal Medicine and Pathology, University of Alberta, Edmonton

Reprint requests to: Dr. Laurence D. Jewell, Department of Pathology, Walter C. Mackenzie Health Sciences Centre, University of Alberta Hospitals, Edmonton, Alta. T6G 2R7

boli. The multiple glial nodules in the central nervous system may have indicated CMV cerebritis or a direct effect of HIV on the neurons.⁸

The immediate cause of death was severe hyaline membrane formation in both lungs, consistent with adult respiratory distress syndrome. CMV inclusions were numerous in the lungs (Fig. 1).

Discussion

The patient we have described had profound cell-mediated immune deficiency. His clinical course was complicated by multiple opportunistic infections. Skin tests showed a complete lack of response to phytohemagglutinin and concanavalin A. However, the cause of his immune deficiency was not obvious. In 1983 we suspected AIDS; the blood sample drawn in February 1980 was found to be positive for HIV by means of ELISA.

One of us (A.V.) travelled to Zaire in 1984, traced the hospital records and talked with the local physician who remembered the accident and the patient. Although the charts were incomplete, the physician recalled that people had come to the hospital to donate blood for the patient. Since Zaire is highly endemic for HIV,^{9,10} the historical features of this case suggest that this was a transfusion-acquired case of AIDS that first manifested in July 1978. Therefore, it is one of the earliest recognized cases of AIDS in a North American.

References

1. *Pneumocystis pneumonia* — Los Angeles. *MMWR* 1981; 30: 250-252
2. Masur H, Michelis MA, Greene JB et al: An outbreak of community-acquired *Pneumocystis carinii* pneumonia. Manifestations of cellular immune dysfunction. *N Engl J Med* 1981; 305: 1431-1438
3. Gottlieb MS, Schroff R, Schanker HM et al: *Pneumocystis carinii* pneumonia and mucosal candidiasis in previously healthy homosexual men: evidence on a new acquired cellular immunodeficiency. *Ibid*: 1425-1431
4. Bygbjerg IC: AIDS in a Danish surgeon (Zaire, 1976) [C]. *Lancet* 1983; 1: 925
5. Vandepitte J, Verwilghen R, Zachee P: AIDS and cryptococcosis (Zaire, 1977) [C]. *Ibid*: 925-926
6. Nahmias AJ, Weiss Y, Yao X et al: Evidence for infection with an HTLV-III/LAV-like virus in Central Africa, 1959. *Lancet* 1984; 1: 1279-1280
7. Reichert C, Giliary T, Levens D et al: Autopsy pathology in the acquired immune deficiency syndrome. *Am J Pathol* 1983; 112: 357-382
8. Sharer LR, Epstein LG, Cho ES et al: Pathologic features of AIDS encephalopathy in children: evidence for LAV/HTLV-III infection of brain. *Hum Pathol* 1986; 17: 271-284
9. Piot P, Taelman H, Minlangu KB et al: Acquired immunodeficiency syndrome in a heterosexual population in Zaire. *Lancet* 1984; 2: 65-69
10. Offenstadt G, Pinta P, Hericord P et al: Multiple opportunistic infection due to AIDS in a previously healthy black woman from Zaire [C]. *N Engl J Med* 1983; 308: 775

Meetings

continued from page 636

Dec. 5, 1987

Trauma and the Anaesthetist
Health Sciences Centre, University of Calgary
Mrs. Jocelyn Lockyer, Continuing Medical Education,
Faculty of Medicine, University of Calgary, 3330
Hospital Dr. NW, Calgary, Alta. T2N 4N1;
(403) 220-7240

Dec. 7, 1987

3rd Annual Course: Sepsis in Surgery
Mount Sinai Hospital, Toronto
Continuing Education, Faculty of Medicine, Medical
Sciences Building, University of Toronto, Toronto,
Ont. M5S 1A8; (416) 978-2718

Dec. 9-11, 1987

Canadian Nuclear Medicine Meeting
Chateau Frontenac Hotel, Quebec
Dr. William Vezina, scientific chairman, University
Hospital, PO Box 5339, Stn. A, London, Ont.
N6A 5A5; (519) 663-3424

Dec. 10-11, 1987

Acute and Chronic Pain Management
Chateau Halifax
Ms. Liz Poulsen, program coordinator, Division of
Continuing Medical Education, Sir Charles Tupper
Medical Building, Dalhousie University, Halifax, NS
B3H 4H7; (902) 424-2061

Dec. 10-11, 1987

Contemporary Management of Cardiovascular Disease
Hilton Harbour Castle Hotel, Toronto
Professional Education Department, Heart and Stroke
Foundation of Ontario, 576 Church St., Toronto, Ont.
M4Y 2S1; (416) 962-3600

January

Jan. 21-22, 1988

Obstetrics, Newborn and Pediatric Care
Health Sciences Centre, University of Calgary
Mrs. Jocelyn Lockyer, Continuing Medical Education,
Faculty of Medicine, University of Calgary, 3330
Hospital Dr. NW, Calgary, Alta. T2N 4N1;
(403) 220-7240

Jan. 21-22, 1988

Short Course on Paediatrics
Chateau Halifax
Ms. Christine Smith, program coordinator, Division of
Continuing Medical Education, Sir Charles Tupper
Medical Building, Dalhousie University, Halifax, NS
B3H 4H7; (902) 424-2061